

Cont
47. (New) A method as set forth in claim 46, wherein the laser beam is in the form of pulsed laser radiation.

AI
48. (New) A method as set forth in claim 46, wherein the laser beam is generated using an Nd:YAG laser.

49. (New) A method as set forth in claim 48, wherein the Nd:YAG laser is a diode laser pumped Nd:YAG laser.

50. (New) A method as set forth in claim 46, further comprising selectively transmitting portions of the laser beam through a mode selection element in order to obtain suitable laser mode characteristics.

51. (New) A method as set forth in claim 50, further comprising arranging the mode selection element within a laser cavity adapted to generate said laser beam.

52. (New) A method as set forth in one of claims 50 and 51, wherein the laser mode characteristics are TEM₀₀ characteristics.

53. (New) A method as set forth in claim 46, further comprising:
focusing the laser beam on a strip surface selected from the upper surface and the lower surface; and
increasing a diameter of the laser beam before the laser beam is focused.

Cont
Al
54. (New) A method as set forth in claim 53, wherein the laser beam is focused on the selected strip surface using a flat-field lens having an effective focal length of approximately 120-180 mm.

55. (New) A method as set forth in claim 53, further comprising effecting controlled deflection of the laser beam in two mutually perpendicular directions for providing the marks on the articles, the laser beam being deflected before being focused.

56. (New) A method as set forth in claim 44, further comprising forming the articles integrated using the strip with the article forming unit.

57. (New) A method as set forth in claim 44, further comprising guiding the strip past the laser unit.

58. (New) A method as set forth in claim 44, further comprising guiding the strip using guiding elements, while passing the laser unit, through a longitudinal channel, the guiding elements bearing on opposite longitudinal edges of the strip, wherein at least one of the guiding elements is displaceable and is biased towards the strip.

59. (New) A method as set forth in claim 58, wherein each of the guiding elements comprises a freely rotatable body having a peripheral surface that bears on a longitudinal edge of the strip.

Cont
A1
60. (New) A method as set forth in claim 58, further comprising:
arranging at least one guiding cover between the guiding elements with a
small clearance from the upper surface or the lower surface of the strip; and
focusing the laser beam onto the upper surface or the lower surface through
an opening in the at least one guiding cover.

61. (New) A method as set forth in claim 44, wherein the articles are
opening tabs to be attached to ends of the cans.

62. (New) A method as set forth in claim 61, wherein peripheral edge
portions of each tab are bent inwardly and an opening is cut in the tab, and wherein
the laser engravings are provided on a surface of the tab between the opening and
the bent edge portions of the tab.

Sub B⁹ 63. (New) An apparatus for manufacturing articles to be included in cans,
comprising:

a supply of a metal strip having an upper surface and a lower surface;
an article forming unit;
a strip feeder between the supply and the article forming unit, the strip feeder
intermittently moving the strip into the article forming unit such that the strip is in an
immobilised condition between periods of intermittent movement;
a laser unit arranged between the supply of metal strip and the article forming
unit, the laser unit providing laser engravings on at least one of the upper surface
and the lower surface of the strip, the laser engravings forming marks on at least one

of the upper surface and the lower surface of the strip to be formed into the articles by the article forming unit; and

Cont a control unit in communication with the laser unit, the laser unit being controlled so that the laser engravings are provided on at least one of the upper surface and the lower surface of the strip when the strip is in the immobilised condition between the periods of intermittent movement.

AI
SUB I
64. (New) An apparatus as claimed in claim 63, wherein the laser engravings have a depth of about 1-5 μm .

65. (New) An apparatus as set forth in claim 63, wherein the laser unit includes a beam generator that generates a beam of laser radiation in the near IR wavelength range.

66. (New) An apparatus as set forth in claim 65, wherein the laser beam comprises a beam of pulsed laser radiation.

67. (New) An apparatus as set forth in claim 65, wherein the beam generator comprises one of an Nd:YAG laser and a diode laser pumped Nd:YAG laser.

68. (New) An apparatus as set forth in claim 65, wherein the beam generator includes a laser cavity, and a mode selection element defining an aperture of variable diameter, the mode selection element being arranged to selectively transmit a portion of the laser beam for obtaining suitable laser mode characteristics.

Cont
69. (New) An apparatus as set forth in claim 68, wherein the mode selection element is arranged in the laser cavity.

Al
70. (New) An apparatus as set forth in one of claims 68 and 69, wherein the laser mode characteristics are TEM₀₀ laser mode characteristics.

71. (New) An apparatus as set forth in claim 65, wherein the laser unit further comprises a beam expander that increases a diameter of the laser beam emitted from the beam generator, and a beam focuser that focuses the laser beam onto one of the upper surface and the lower surface of the strip, the beam expander being arranged upstream of the beam focuser.

72. (New) An apparatus as set forth in claim 71, wherein the beam focuser comprises a flat-field lens having an effective focal length of approximately 120-180 mm.

73. (New) An apparatus as set forth in claim 71, wherein the laser unit further comprises a beam deflector that effects a controlled deflection of the laser beam in two mutually perpendicular directions, the beam deflector being arranged intermediate the beam expander and the beam focuser.

74. (New) An apparatus as set forth in claim 63, wherein the article forming unit is arranged to form the articles integrated with the strip.

75. (New) An apparatus as set forth in claim 63, wherein the laser unit is arranged adjacent to the article forming unit but does not impart vibrations to or otherwise disrupt operation of the article forming unit.

76. (New) An apparatus as set forth in claim 63, further comprising a guide that guides said strip past said laser unit.

77. (New) An apparatus as set forth in claim 76, wherein said guide includes a longitudinal channel that receives said strip, the channel being at least partly defined by guiding elements that are arranged for abutment against opposite longitudinal edges of the strip, wherein at least one of the guiding elements is displaceable and biased towards the channel.

78. (New) An apparatus as set forth in claim 77, wherein each of the guiding elements comprises a freely rotatable body having a peripheral surface for abutment against a longitudinal edge of the strip.

79. (New) An apparatus as set forth in claim 77, wherein the channel is further defined by at least one guiding cover that is arranged between the guiding elements with a small clearance from one of said upper and lower surfaces of the strip, the guiding cover defining an opening allowing the laser unit to provide the laser engravings on at least one of the upper surface and the lower surface.

80. (New) An apparatus as set forth in claim 63, wherein the laser unit is disconnectible for allowing article manufacture without marking of the strip.

Cont Sub B0 81. (New) An apparatus as set forth in one of claim 63, wherein said articles are opening tabs to be attached to ends of the cans.

AI Sub I 82. (New) An apparatus as set forth in claim 81, wherein each of the tabs includes inwardly bent peripheral edge portions that are formed with the article forming unit, and the article forming unit includes a cutter that cuts an opening in each of the tabs, the laser unit being adjustable in such way that the marks are provided on a surface of each of the tabs between the opening and the bent edge portions of each of the tabs.

83. (New) An opening tab to be fastened on an end of a can and having at least one laser engraved mark on at least one of a top surface and a bottom surface thereof.

84. (New) An opening tab as set forth in claim 83, further comprising inwardly bent peripheral edge portions and an opening, the at least one laser engraved mark being provided on a surface of the tab between the opening and the edge portions of the tab.

85. (New) An opening tab as set forth in claim 83, wherein said at least one laser engraved mark forms an hour code indicating when the tab was produced.

86. (New) An opening tab as set forth in claim 85, wherein said at least one laser engraved mark further forms a minute code indicating when the tab was produced.

87. (New) A can end having an opening tab as set forth in claim 83.

88. (New) A can having a can end with an opening tab as set forth in claim 83, wherein said at least one laser engraved mark is located on the bottom surface of said opening tab to form a code indicating that a person who opens the can using the tab is a winner.

89. (New) A method for creating an engraved laser mark on a beverage can with the laser, the method including producing a beam with the laser that creates at least one laser engraved mark on an opening tab for a can end to be included in the beverage can.

90. (New) An apparatus for manufacturing articles to be included in cans, comprising:

- a supply of a metal strip having an upper surface and a lower surface;
- an article forming unit;
- a strip feeder between the supply and the article forming unit, the strip feeder moving the strip into the article forming unit in periods of rapid movement;
- a laser unit arranged between the supply of metal strip and the article forming unit, the laser unit providing laser engravings on at least one of the upper surface and the lower surface of the strip, the laser engravings forming marks on at least one